ABSTRACT

Bachelor thesis

Morphological characteristics of alterations in lungs in a mouse model of atherosclerosis

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Background: Atherosclerosis is a multifactorial disease caused by deposition of blood lipids into the intima layer of blood vessels. Due to the fact that process of atherogenesis is associated with immune reactions, disease is considered as an inflammatory process. Atherosclerotic plaques rarely affect pulmonary arteries, where this condition is accompanied by an increase of pulmonary pressure, which is very likely the trigger of disease. Aim of this study is to find out whether there are morphological changes in the lungs of ApoE/LDLr$^{-/-}$ mouse model of atherosclerosis, characteristic for pulmonary atherosclerosis, compared to lungs of healthy mice.

Methods: Lungs of ApoE/LDLr$^{-/-}$ and healthy C57BL/6J control mice have been fixed in 4% neutral formaldehyde, embedded in paraffin and sliced into 4 μm thin sections. One of the sections has been stained with hematoxylin-eosin, the other one with green trichrome. Staining with hematoxylin-eosin is primary staining used for basic imaging of histological structure of tissues, staining with green trichrome is used for imaging of potencial alterations in collagenous tissue.

Results: After microscopic observation of stained sections, we can conclude that there are no signifiant morphological alterations in lungs of ApoE/LDLr$^{-/-}$ mice when compared with lungs of control group mice.

Keywords: atherosclerosis, pulmonary arteries, lungs, ApoE/LDLr$^{-/-}$ mice, C57BL/6J mice